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does not enumerate a single specimen of the Harvest Mouse. I have just received a second specimen from Mr. Dickinson, who sent me the first one, and, as this is an adult in perfect condition and fully confirms the peculiar characters of number one, it may form the type of the following diagnosis:

Reithrodontomys humilis dickinsoni.[1] Type ad. ♀, No. 2240, col. of S. N. Rhoads. Col. by W. S. Dickinson, at Willow Oak, Pasco Co., Florida, Apr. 6th, 1895.

Description: Size considerably smaller than *R. humilis.* Color above, uniform plumbeous gray, almost sooty, slightly darker along middle of back and rump, and a faint wash of light brown on sides. Tail above like back; below, grayish, like feet and under parts. Skull as in *humilis,* but distinctly smaller.

Measurements: Total length, 118; tail vertebræ, 56; hind foot, 15. Skull, total length, 18·3; basilar length, 13·6; length of nasals, 6·1; interorbital constriction, 3·1; zygomatic expansion, 9·6; length of mandible, 10; width of mandible, 4·7 mm.

This race of the common eastern Harvest Mouse conforms to the peculiarities of the Floridian as contrasted with the Carolinian environment in the same way that its allies and neighbors of the genera *Sigmodon* and *Peromyscus* have done, *viz.*, in the diminuition of brown and rusty colors and the acquirement of a more or less darkened shade of gray.

—Samuel N. Rhoads.

EMBRYOLOGY.[1]

Grafting Amphibia.—Professor G. Born has published a preliminary notice[2] of some novel experiments made upon the young tadpoles of various amphibia.

In studying regenerative processes in young tadpoles he observed that when a tadpole was cut into two pieces, the pieces might unite again if kept close together. This led to a series of experiments that, at the time of publication, furnished the results enumerated below.

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[1] Named for Mr. W. S. Dickinson of Tarpon Springs, Fla. in recognition of of his valuable services in the collecting of Florida mammals.

[1] Edited by E. A. Andrews, Baltimore, Md., to whom abstracts, reviews and preliminary notes may be sent.

[2] Jahresbericht d. Schlesischen Gesell. f. vat. Cultur Sitz., June 8, 1894.

He used larvæ that were ready to escape from the egg jelly or those that had just escaped. They were put into 6% solution of sodium chloride and cut across with scissors or a scalpel into an anterior and posterior half. The pieces were at once brought together and held in place by various means till they grew together completely. Subsequently they were transferred to a fresh supply of the salt solution. It was found to be easy to get two tail pieces to unite, since the cilia that normally move the animal forward would push the two tails toward one another. With other pieces various artificies were necessary to prevent the ciliated action or the muscular contraction moving the wounded surfaces apart before union had taken place.

1. When the tail ends of two tadpoles of *Rana esculenta* are placed with the cut ends together, they unite in twenty-four hours quite completely, so that there is little external evidence of the line of fusion. These joined tails live for eight days and increase in length; they then degenerate and become dropsical.

The union may be made direct with the dorsal and ventral sides continuous in the two, or inverted with the dorsal of one continuous with the ventral side of the other. When very long pieces are taken a heart may develop in each, while in seven days there is an increase in length, for the two, of 2.9 mm. from a length of 15.6 mm.

It is also possible to unite such a long posterior part with a shorter posterior part; then the head of a larva is replaced by the tail and belly of another growing forward in its place.

2. The anterior ends of two larvæ may be made to unite. This succeeds more readily with the younger stages. Here again the union may be direct or inverted. In one case of the latter method of fusion, two that had been cut across in the region of the liver, remained united for fourteen days, during which time much differentiation took place in each head.

In the larvæ of the newt, triton, union of anterior pieces was affected, but this was less complete than in the case of the frog tadpoles.

3. Complex unions of two larvæ may result when the cuts are not quite complete and the two pieces of each remain connected by a slender bridge of tissue; the two pieces may be folded back side by side, and then pushed against the similar pieces of the other larva. The opposite ends of two larvæ may then fuse together while still remaining attached to their own proper terminations.

4. The anterior part of one larva may be united to the posterior part of another individual.

When the pieces are long, the same region is repeated in the resulting fusion, since it is present in the posterior part of one larva and in the anterior part of the other. In only one case, however, did this experiment succeed. After five days there had been much growth, but the intestine had not fused across the line of union and there was no circulation in the posterior piece.

5. Two frog larvæ may be easily united belly to belly so that a true twin is formed.

The animals may be united with the ends reversed as well as with the heads and tails in the same direction.

6. It is even possible to unite larvæ of different genera even of different families.

The posterior end of a frog larva was fused to the anterior end of a triton larva.

The anterior end of a frog larva and the posterior end of a toad larva (*Bombinator igneus*) were readily united. The inverse of this last experiment also succeeded.

7. The larvæ of *Rana esculenta* and *Bombinator igneus* were united belly to belly, producing a true double monster, gastrophagus, made up of animals of two different genera.

The Embryo of the Duckbill.—At the meeting of the Linnean Society of New South Wales, Nov. 28, 1894, J. P. Hill and C. J. Martin read a description of an embryo of the duckbill taken from an intrauterine egg. The embryo described was taken from one of two eggs just ready to be laid. The egg measured 18 mm. by 13.5, being somewhat larger than the eggs described by Caldwell. The embryo was found lying on the surface of a thin-walled vesicle with its long axis corresponding to the long axis of the egg.

It measured 19 mm. in length from the anterior end of the medullary plate to the posterior end of the primitive streak. The vesicle on which the embryo lay consisted of two layers all over, with the mesoderm extending about half way round between and comparable to a typical mammalian blastodermic vesicle. The vesicle filled the whole of the egg, and contained a thin albuminous fluid together with a thin layer of yolk spheres next to its wall. The embryo with the exception of a slight head fold, is quite flat. Medullary folds are absent except in the most anterior region of the future fore-brain, where slight lateral upgrowths of the medullary plate appear. The three cerebral vesicles are indicated, and in the region of the hind brain four well-marked neuromeres exist. External to the 2d, 3d, and 4th neuromeres is an extensive auditory plate, already slightly grooved. There are seventeen somites, which, in the middle region of the trunk, possess distinct cavities, and externally to these from the 4th to the 17th, are situated the beginnings of the Wolffian bodies. At the 7th somite the Wolffian duct is first seen, the appearance of which in sections suggests an ectodermal origin. Double heart origins are present, but there is no trace of a vascular area besides a slight mottling in and around the area pellucida. A distinct blastopore is present with a neurenteric canal, which runs through the head process and opens into the archenteron (yolk-sac cavity). The primitive streak extends behind the blastopore to a distance of 1.5 mm. The embryo more nearly resembles that of the Virginia opossum (Didelphys) of 73 hours described by Selenka, than any other embryo known to the authors. The Platypus embryo is, however, much longer.—Zool. Anzeiger, 1895, p. 31. K.

ANTHROPOLOGY.[1]

The Antiquity of Man in North America.—The problem of the antiquity of man on this continent has received some interesting contributions within the last few years, and it will be interesting to take a survey of its present condition.

The sources of information respecting the first human inhabitants of a country are four-fold—two-fold as to materials, and two-fold as to localities. The materials may be either his bones or his handiwork ; the localities are deposits which are either within caves or outside of caves. The bones of primitive man have shown that there was, in Europe, and possibly in Asia (Java), a species of the Genus Homo distinct from the *H. sapiens*, which has been called *H. neanderthalensis*. This being possessed all the characters of the skeleton, dentition, etc., which belong

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[1] This department is edited by H. C. Mercer, University of Pennsylvania.